

EDITORIAL

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Enhancing Railway Safety in India: Current Challenges and Strategic Measures

GS Paper 3: Infrastructure | Safety

Introduction

The Indian Railways, one of the world's largest railway networks, plays a pivotal role in the nation's transportation and economic framework. Despite significant advancements, recent incidents underscore the pressing need to address safety concerns comprehensively.

Recent Incidents Highlighting Safety Concerns

- **Jalgaon Tragedy (January 2025):** A distressing incident occurred near Pardhade railway station in Maharashtra, where at least 12 passengers lost their lives. Panic ensued due to a rumored fire on the Pushpak Express, leading passengers to disembark onto adjacent tracks, where they were struck by the passing Karnataka Express.
- **Gonda Derailment (July 2024):** The Chandigarh-Dibrugarh Express derailed in Uttar Pradesh's Gonda district, resulting in two fatalities and 20 injuries. Several coaches overturned, emphasizing the need for rigorous track maintenance and safety protocols.

Status of Railway Accidents

1. **Decline in Railway Accidents:**
 - **1960s:** Annual average of **1,390 accidents**.
 - **Last decade:** Reduced to **~80 accidents per year**.
2. **Recent Trends:**
 - **2021-22:** 34 consequential accidents.
 - **2022-23:** 48 consequential accidents.
 - **2023-24:** 40 consequential accidents.
3. **Primary Causes:**
 - **Human Errors:** 55.8% of accidents due to staff failures.
 - **Non-staff Failures:** Account for 28.4%.
 - **Equipment Failure:** Responsible for 6.2%.
4. **Major Incidents:**
 - **Balasore (2023)** and **Kavaraipettai (2024)** accidents were caused by **signalling errors**.

Key Causes of Railway Accidents

1. **Inadequate Safety Technologies:**
 - Limited deployment of **Kavach** (2% of total route length by February 2024).
2. **Signalling Failures:**
 - **70% of major accidents** since 1990-91 caused by derailments due to signalling errors.
3. **Network Congestion:**
 - **30% of railway network** utilized beyond **100% capacity**.
4. **Insufficient Track Maintenance:**
 - Track renewal capital outlay reduced to **7.2%** (2023-24 budget).
 - Depreciation Reserve Fund appropriations fell **96% (2014-19)**.
5. **High Operating Ratio (OR):**
 - FY 2024-25: **98.2**, indicating minimal funds available for safety upgrades.

6. **Slow Infrastructure Development:**
 - Of the **Dedicated Freight Corridors (DFCs)** planned in 2005, only the **Eastern DFC** is fully operational.
7. **Prolonged Working Hours:**
 - Signal Passed at Danger (SPAD) incidents linked to **overworked loco pilots**.
8. **Revenue Imbalance:**
 - **Passenger losses** offset freight revenue, e.g., ₹50,000 crore revenue vs. ₹63,364 crore losses in 2019-20.

Recommendations by Committees for Railway Safety

1. **Rakesh Mohan Committee (2010):**
 - Revamp accounting to align with **Indian GAAP**.
 - Focus on **High-Speed Rail** and logistics hubs.
2. **Kakodkar Committee (2012):**
 - Set up a **Railway Safety Authority**.
 - Establish **Rashtriya Rail Sanraksha Kosh (RRSK)** with ₹1 lakh crore over 5 years.
3. **Bibek Debroy Committee (2014):**
 - Create a **Railway Infrastructure Authority of India**.
4. **Vinod Rai Committee (2015):**
 - Form an **independent Railway Safety Authority**.
 - Establish a **Railway Accident Investigation Board**.

Steps Taken for Railway Safety

1. **Kavach System:** Anti-collision technology.
2. **Rashtriya Rail Sanraksha Kosh (RRSK):** Dedicated safety fund.
3. **Elimination of Unmanned Level Crossings.**
4. **GPS-based Fog Safety Devices.**

Way Forward to Prevent Railway Accidents

1. **Address Loco Pilot Vacancies:** Fill **18,799 vacancies** to reduce overwork and fatigue-related errors.
2. **Expand Kavach Installation:** Prioritize high-risk and high-traffic routes for deployment.
3. **Resolve Network Congestion:** Expedite completion of **Dedicated Freight Corridors (DFCs)**.
4. **Create Independent Railway Safety Authority:** Ensure specialized and independent safety oversight.
5. **Improve Signal Infrastructure:** Invest in advanced signalling and communication technologies.
6. **Work Hour Regulations:** Enforce strict limits on working hours for loco pilots.
7. **Increase Passenger Revenue:** Rationalize fares or improve service efficiency to offset passenger losses.
8. **Track Maintenance and Modernization:** Allocate sufficient funds for track renewal and regular inspections.
9. **Safety Awareness Programs:** Promote public awareness on railway safety protocols.
10. **Install Trackside Fencing:** Prevent accidents caused by cattle runovers.

Conclusion

While Indian Railways has improved safety metrics over the decades, challenges like **network congestion, underfunding of safety technologies, and signalling failures** persist. Implementing committee recommendations, modernizing infrastructure, and addressing systemic financial and operational inefficiencies are critical for ensuring a safer and more reliable railway system.

MAINS QUESTION

General Studies Paper 3: Infrastructure | Safety

Examine the role of advanced technologies like Kavach and Automatic Block Signalling (ABS) in enhancing railway safety in India. What are the challenges in their widespread implementation?

General Studies Paper 2: Governance | Accountability

The Kakodkar Committee (2012) recommended setting up an independent Railway Safety Authority. Analyze its relevance in addressing current safety challenges in Indian Railways.

Essay Questions

Safety First: Balancing Expansion and Operational Efficiency in Indian Railways.